

## **Historic, Archive Document**

Do not assume content reflects current scientific knowledge, policies, or practices.



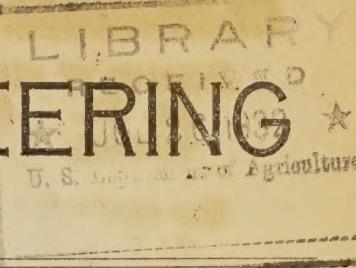
32A

# CURRENT LITERATURE

IN

# AGRICULTURAL ENGINEERING

UNITED STATES DEPARTMENT OF AGRICULTURE  
BUREAU OF AGRICULTURAL ENGINEERING



WASHINGTON, D. C.

Vol. 1, No. 12.

July, 1932.

## Agriculture.

Agricultural prosperity arrived with power farming. Implement Record.  
v. 29, no. 7. July, 1932. p.13-14. Until advent of machinery,  
farming was on mere subsistence basis.

Agriculture and the depression. By Walter E. Packard. Agricultural Engineering.  
v. 13, no.6. June, 1932. p.152-155.

Application of engineering to agriculture considered at Ohio State meeting.  
Engineering News Record. v.108, no. 26. June 30, 1932. p. 931.  
Discussion of Annual Meeting of American Society of Agricultural Engineers.

Farm profits and factors influencing farm profits on 98 dairy farms in Sussex  
County. By Allen G. Waller and Emil Rauchenstein. 1932. 39p.  
New Jersey. Agricultural Experiment Station Bulletin no. 542.

Save the corn with silos. Nebraska Farmer. v. 74, no. 13. June 25,  
1932. p. 3, 10.

Stories of farm changes in charts. Agricultural Review. v. 22, no. 3.  
September, 1931. p. 11-13.

Why back - to - the - land? : Editorial. Nebraska Farmer. v. 74, no.13.  
June 25, 1932. p.6. Widespread, organized back-to-the-farm movement  
would be at expense of farming industry, already overburdened with low prices  
and surplus production. We have too many farmers now.

## Air conditioning.

Air conditioning and space cooling. By E. H. Taze. Refrigeration. v. 51,  
no. 6. Juno, 1932. p. 18-19.

Comfort chart for air conditioning. Electrical World. v. 99, no. 26.  
June 25, 1932. p. 1100. Advice of Dean F. Paul Anderson, University of  
Kentucky. There is relationship between dry bulb temperature, wet bulb  
temperature and air motion which is just as invariable as law of gravitation.

Equipment available for complete or partial air conditioning. By W. D. Jordan.  
Fuel Oil Journal. v. 11, no. 1. July, 1932. p. 48-49, 118-121. Cen-  
tral heating, humidifying, washing; unit air conditioners; humidifiers;  
waste heat for conditioning; central systems.

## Air Conditioning. (Cont'd)

Meaning of air conditioning. By W. D. Jordan. Fuel Oil Journal. v. 10, no. 12. June, 1932. p. 22-24, 92-95. Explains scope of air conditioning.

New comfort zone. By E. V. Hill. Aerologist. v. 8, no. 7. July, 1932. p. 5-8, 33. Comfort for nude subjects as indicated by forehead temperatures.

Prepare for the business of providing summer comfort. By S. M. Anderson. Domestic Engineering. v. 139, no. 5. May 28, 1932. p. 30-31. Gives fundamental technical or engineering considerations.

Survey of ice for air cooling applications. By R. T. Brizzolara. Ice and Refrigeration. v. 82, no. 4. April, 1932. p. 233-240. Advantages of ice for cooling from engineering standpoint. Cost of manufactured ice. Surface cooling units.

What is air conditioning? By E. V. Hill. Aerologist. v. 8, no. 7. July, 1932. p. 29-33.

## Associations:

A. S. A. E. Annual Meeting. Agricultural Engineering. v. 13, no. 6. June, 1932. p. 165-166.

Proceedings of the National Conference on Land Utilization. Chicago, Ill. November, 19-21, 1931. 1932. 251p.

Report of proceedings of second southwest soil and water conservation conference. 1931. 94p. Oklahoma Agricultural Experiment Station Circular no. 19.

## Barns.

Disinfection of stables. By George W. Pope. Revised 1932. 13p. U.S. Department of Agriculture. Farmers' Bulletin no. 954.

Length and floor construction of dairy stalls. By Henry Giese and C.Y. Cannon. 1932. 186-209p. Iowa. Agricultural Experiment Station. Research bulletin no. 150.

## Building construction.

Analysis of statically indeterminate beams by the theorems of two and three moments. By Alfred Lawrence Miller. 1932. 51p. Washington Engineering Experiment Station. Bulletin no. 64.

How poor economy resulted from incorrect design in running roof pipes. By A. J. Parks. Domestic Engineering. v. 139, no. 5. May 28, 1932. p. 16-18. Shows forceful reason in favor of plumbing regulation.

How to make dry basements. American Builder and Building Age. v. 53, no. 1. April, 1932. p. 56.

Simplifying reinforced concrete beam design. By Odd Albert. Engineering News-Record. v. 108, no. 24. June 16, 1932. p. 860-861. By use of special equations and constants steel areas are determined with only three

Building construction. (Cont'd)

lines of computation. Charts for checking and estimating.

Skillful planning achieves low unit costs. American Builder and Building Age. v. 53, no.1. April, 1932. p. 32-33.

Steel institute housing conference. By Peter A. Stone. Architectural Record. v. 72, no.1. July, 1932. p. 54, 38.

Strength of light I beams: Report of investigation conducted by Engineering Experiment Station, University of Illinois, in cooperation with Jones and Laughlin Steel Corporation. By Milo S. Ketchum and Jasper O. Draffin. 1932. 44p. Illinois Engineering Experiment Station. Bulletin no. 241.

Columbia Basin.

Columbia basin project reported feasible. Engineering News-Record. v. 108, no.26. June 30, 1932. p. 907-911. Combined power and irrigation scheme is considered feasible on basis that power is absorbed at uniform rate over period of fifteen years and that there will be revenue of 2.25 mills per kilowatt-hour plus \$1 per acre per year for pumping, assuming developments of project at rate of 20,000 acres per year. Editorial. p.906.

Concrete.

How to avoid faulty concrete in small structures. 1932. 154p. Purdue University Engineering Extension Department. Extension Bulletin no. 27.

Conduits.

Concrete culverts lengthened with corrugated iron pipe. By H. A. Pabst. Engineering News-Record. v. 108, no. 24. June 16, 1932. p.859.

Cotton.

Vertical seed-cotton drier. By Charles A. Bennett. 1932. 8p. U.S. Department of Agriculture . Miscellaneous Publication no. 149.

Dairy Equipment.

New electric dairy utensil sterilizer. By H. Elmer Bosley. Agricultural Engineering. v. 13, no.6. June, 1932. p. 141-143. Heating arrangements for preliminary tests; Wattage for four-can sterilizer; Steam sterilization from adhering water; Effect of added insulation.

Dams.

Types of gates used on dams in Europe. By Eric C. Molko. Power. v. 75, no. 23. June 7, 1932. p. 852-853. Diagrams give different gate arrangement used on dams in Europe.

Wyman dam development. By H. K. Fairbanks. Power Plant Engineering. v. 36, no. 13. July 1, 1931. p. 518-522. New hydro-electric power development on Kennebec river adds 68,000 hp. to system of Central Maine Power Co.

## Drainage.

Farm drainage practice. By H. B. Roe and J. H. Neal. 1932. 23p. Minnesota University. Agricultural Extension Division. Special bulletin no. 149.

Loads on pipe in wide ditches. By W. J. Schlick. 1932. 48p. Iowa Engineering Experiment Station. Bulletin no. 108.

Stabilization by drainage of muck and sand fill. By C. A. Hogentogler and E. A. Willis. Public Roads. v. 13, no. 4. June, 1932. p. 57-63, 72.

Texas drainage statistics. Farm and Ranch. v. 51, no. 9. May 1, 1932. p. 9. Figures from U. S. Bureau of Census.

Underdrainage as protection of crops against drought damage. By J. H. Neal. 1932. 8p. Paper presented at meeting of Land Reclamation Division of American Society of Agricultural Engineers, December, 1931.

## Electric wiring.

Adequate wiring stimulated by utility certification. Electrical World. v. 99, no. 23. June 4, 1932. p. 994-996.

Custom-built lighting. By D. W. Atwater. Electric Journal. v. 29, no. 7. July, 1932. p. 319-321. Change to this new kind of lighting will mean not merely 20 to 30 lamps per home but upwards of hundred. With home lighting wattage amounting to only one-fourth of central station load but almost two-thirds of revenue, custom-built lighting has fascinating possibilities.

## Electricity on the farm.

Construction and operation of electric brooders. By J. E. Dougherty and B. D. Moscs. 1932. 30p. California Agricultural Experiment Station Circular no. 325.

Cost of rural hydro. Hydro-electric Power Commission of Ontario. Bulletin v. 19, no. 5. May, 1932. p. 153-154.

High line electricity goes to work in the barn. Northwest Farm Equipment Journal. v. 46, no. 6. June, 1932. p. 25-28.

Those electrical terms and formulas. By B. W. Fabor. Farm Implement News. v. 53, no. 22. June 23, 1932. p. 14-15.

## Farm Buildings.

Farm building and equipment plans. Compiled by H. H. Gordon and S. H. Byrne. 1932. Multigraphed. Virginia Polytechnic Institute, Agricultural Engineering Department, Extension Division.

## Farm machinery and equipment.

Ann Arbor offers pick-up baler. Implement and Tractor Trade Journal. v. 47, no. 14. July 2, 1932. p. 13-14. New machine bales either hay or straw direct from windrow while going through field. Capacity of combine baler is from three to six tons an hour, depending upon yield. Power for operation is through power takeoff of tractor.

Farm machinery and equipment. (Cont'd)

Case announces two new machines: Pick-up baler and one-man combine now ready for market. Farm Implement News. v.53, no. 21. June 9, 1932. p.32-33.

Concerning prices of crops and farm machines. Farm Implement News. v. 53, no.21. June 9, 1932. p.17. Implement prices are affected by long-time trends in farm prices, because latter affect all commodities including labor and basic materials.

Farm implement production and sales in 1931. Farm Implement News. v. 53, no. 21. June 9, 1932. p. 23-25. Census Bureau's statistics show expected large reduction in value of production and sales. Domestic volume not reported separately. Table gives itemized record of farm equipment production and sales in 1931.

Farm machinery repair campaign. Extension Service Review. v. 3, no. 7. July, 1932. p. 106.

Go on with the mechanization of agriculture. Farm Implement News. v. 53, no. 23. July 7, 1932. p. 14-15. Part of address delivered at recent convention of American Society of Agricultural Engineers by James T. Jardine. "Measured in terms of satisfaction and social welfare", he said, "accomplishments toward converting chores into recreation mean as much toward satisfaction and social welfare as to improve important field machine."

Grain elevating machinery for the Palouse County. By Harry L. Garver. 1932. 34p. Washington Agricultural Experiment Station. Bulletin no. 262.

Hay quality depends upon tools. By E. T. Leavitt. Implement and Tractor Trade Journal. v. 47, no. 13. June 18, 1932. p. 8. Perishable crop between cutting and storing in mow, it is essential that grower be equipped for proper handling.

Investigation of implement prices proposed. Farm Implement News. v. 53, no. 21. June 9, 1932. p. 13. Discussion of S.R. 217. Investigation of prices of farm machinery.

Lessons from the 1932 harvest: Poor winter wheat yields following poor preparations should stimulate greater demand for plows and new types of drills. Implement and Tractor Trade Journal. v. 47, no. 14. July 2, 1932. p. 7, 15.

Making sure of a small harvest. Implement and Tractor Trade Journal. v. 47, no. 13. June 18, 1932. p. 11, 18. While possibilities for selling new machines may be lacking in some sections there will be big field for repairs.

No implement saturation. By N.A.F.E.M. Research Dept. Farm Implement News. v. 53, no. 21. June 9, 1932. p. 36. Lack of knowledge of facts and lack of understanding of their use are obstacles which hinder use of modern farm equipment.

Promoting fertility with plows. By E. T. Leavitt. Implement and Tractor Trade Journal. v. 47, no. 14. July 2, 1932. p. 6. Iowa Experiment Station finds average daily cost of standard tractor two-bottom plow to be only \$1.40 where used 16 days annually.

## Farm machinery and equipment. (Cont'd)

Simple inexpensive farm level and how to use it. By H. B. Roe. 1932. 4p. Minnesota. University Agricultural Extension Division. Circular no. 36.

Threshing - just common sense. By John E. Randolph. American Thresherman. v. 35, no. 5 and 6. May-June, 1932. p. 4-5.

## Fences.

Treating fence posts: Preservatives make possible successful use of home-grown posts. Hoard's Dairyman. v. 77, no. 8. April 25, 1932. p. 223.

## Fertilizers.

American fertilizers. By P. E. Howard. 1932. 24p. U. S. Department of Agriculture Miscellaneous Publication no. 143.

## Forage drying.

Commercial hay driers. Wallaces' Farmer. v. 57, no. 11. May 28, 1932. p. 7. Experimental work which has been done so far indicates that with commercial driers grower is enabled to turn out product with higher protein and carbohydrate content, and containing less crude fiber. Drier will also enable him to save from 15 to 20 per cent more of total feed nutrients per acre, because there will be no loss of leaves and no loss due to transpiration in field curing.

Forage driers. Electricity on the Farm. Merchandising supplement. v. 5, no. 6. June, 1932. p. S6-S11. Desirable power load; climate problem; value of alfalfa leaves; improves feeding value; types of dryers.

No "weather worries" when hay is machine dried! By L. J. Smith. Oregon Farmer. v. 54, no. 22. June 2, 1932. p. 3. Research shows decided saving in evaporation when it is crushed.

## Frost protection.

Measurement of orchard heater smoke. By F. A. Brooks. Agricultural Engineering. v. 13, no. 6. June, 1932. p. 149-151.

## Greenhouses.

How to figure radiation for a greenhouse. Domestic Engineering. v. 139, no. 5. May 28, 1932. p. 42.

## Heating.

Chart for computing heating system radiation. By Henry C. Oatley. Power. v. 75, no. 23. June 7, 1932. p. 855-856.

Does a copper pipe give off more heat than iron? By F.C. Houghton and Carl Gutberlet. Domestic Engineering. v. 139, no. 5. May 28, 1932. p. 19-22. Heat loss from bare copper pipe is approximately 54 per cent of loss from bare black iron pipe of same size and 203 per cent of loss from iron pipe covered with four-ply air coil insulation. Heat loss approximately same for horizontal and vertical pipe of same size and material.

## Heating. (Cont'd)

Domestic heating by stored electricity. By S. P. Moore. Aerologist. v. 8, no. 7. July, 1932. p. 15-17.

Economics of building heating with refrigeration equipment. By B. H. Jennings. Power. v. 75, no. 26. June 28, 1932. p. 946-948. Compares operating and first costs of this system with costs of other methods of heating.

Modern radiator. Heating and Ventilating. v. 29, no. 6. June, 1932. p. 36-39. Discusses various types now in use.

## Hitches.

Using horses in larger units. Extension Service Review. v. 3, no. 6. June, 1932. p. 84. Low price of farm products is resulting in more utilization of horse power, and multiple hitch system is principal method of working large teams.

Using horses on the farm. By A. L. Harvey. 1932. 24p. Minnesota University. Agricultural Extension Division. Special bulletin no. 145.

## Hotbeds.

Electric hotbed. By Lola L. Bridston. American Home. v. 7, no. 5. February, 1932. p. 312-313.

Start your plants early. By Paul W. Dempsey. 1932. 8p. Massachusetts State College Extension Service. Extension leaflet no. 60.

## Houses.

Costs of housing. By Henry Wright. Architectural Forum. v. 56, no. 3. March, 1932. p. 299-305. Analysis of cost factors in current home building and potential community building.

Discuss steel house as competition to standard construction. Brick and Clay Record. v. 80, no. 6. June, 1932. p. 295-296. Many problems still to be solved before steel house can be offered on commercial basis. Price and standardization await solution.

Inexpensive small houses. Architectural Forum. v. 56, no. 3. March, 1932. p. 307.

New beaver hat: Imagination and resourcefulness now cause experiments with glass houses and steel houses. Printers' Ink. v. 158, no. 10. March 10, 1932. p. 71-72.

Real low cost house. By Royal Barry Wills. Pencil Points. v. 13, no. 6. June, 1932. p. 391-392.

Two-story houses, two rooms deep, for low-income group. By John E. Conzelman. Engineering News Record. v. 109, no. 1. July 7, 1932. p. 8-9.

## Hydraulics.

Canada backs research with \$3,000,000 building. By E. G. Wilson. Power. v. 75, no. 23. June 7, 1932. p. 837-840. Other buildings house hydraulic testing tank 400 ft. long, internal-combustion engine testing laboratory and wind

tunnel. Future plans include constructing hydraulic laboratory.

Hydraulic flow characteristics of a square-edged intake: Agreement of theory and experiment. By Charles William Harris. 1932. 21p. Washington Engineering Experiment Station. Bulletin no. 61.

Insulation.

Fundamentals of cold store construction. By Edgar A. Griffiths. Cold Storage. v. 35, no. 409. April 21, 1932. p. 89-90. Insulation essentials and heat leakage.

Mechanism of moisture absorption in insulation. By A. A. Berestneff. Refrigerating Engineering. v. 23, no. 6. June, 1932. p. 343-346, 352. Kinds of moisture and methods of penetration; moisture content and conductivity; examples of moisture content in building materials; influence of air humidity on accumulation of moisture in insulation.

Properties of metal foil as an insulating material. By J. L. Gregg. Refrigerating Engineering. v. 23, no. 5. May, 1932. p. 279-283, 288, 290, 304.

Steam pipe insulation underground. Power. v. 75, no. 24. June 14, 1932. p. 877. Insulation thickness as compared with pipe in air can be reduced one-half and heat loss from underground uninsulated pipe should not be assumed greater than double value of heat loss of insulated pipes.

Tests of molded materials. By Dean Harvey. Electric Journal. v. 29, no. 7. July, 1932. p. 328-330, 347. Molded insulating materials are usually difficult to test in finished form. After much delay, A. S. T. M. has found size and shape of sample, and has developed test procedure by which truly comparative results on different materials can be obtained.

Irrigation.

Better crops and more money through irrigation. By J. C. Scott. Electricity on the Farm. v. 5, no. 7. July, 1932. p. 14-17. Applies to districts where precipitation is sufficient to produce crops. Table of pipe sizes.

California irrigation and reclamation bonds hard hit. By T. H. Means. Engineering News-Record. v. 108, no. 24. June 16, 1932. p. 862.

Grid flow-meter shows low loss of head. Engineering News-Record. v. 108, no. 25. June 23, 1932. p. 893. Consists of throat piece, clear opening of which is divided into several passages by horizontal grid bars of streamline cross-section. In passages between these bars pressure drop like that in venturi meter occurs, drop being regained in downstream enlargement. Entrance pressure is received by openings at upstream ends of alternate bars, and throat pressure by lateral openings in intermediate bars. External ring passages transmit these pressures to differential gage. Tests of grid meters of 14 and 16-in. pipe diameter with throat areas ratios of 0.48 to 0.64 at flow velocities of 9 to 12 ft. per second showed loss of head to range from  $5\frac{1}{2}$  to 10 per cent for several meters.

India's largest irrigation project. California Cultivator. v. 78, no. 20. May 14, 1932. p. 453, 465. Lloyd Barrage. Total cost will be approximately \$75,000,000. Eventually will bring under cultivation some 5 or 6 million acres.

## Irrigation.

(Cont'd)

Irrigation - sub and overhead. Market Growers Journal. v.50, no.12. June 15, 1932. p.283.

Loan asked for irrigation project in Arizona. Engineering News Record. v.108, no.24. June 16, 1932. p.870. Verdi River Irrigation and Power District of Arizona.

Montana irrigation committee studies water problems. Reclamation Era. v.23, no.7. July 1932. p.134. Plan comprehensive study of and report on all pertinent features of storage and use of water in state, financing of irrigation projects, questions of law as to water rights, creation of irrigation districts, and proper utilization of water supplies.

Monterey county water survey. By R.Albaugh. California Cultivator. v.78, no.20. May 14, 1932. p.468. About 100,000 acres under irrigation in county.

Parshall flumes of large size. By R.L.Parshall. 1932. 55p. Colorado Agricultural Experiment Station. Bulletin no.386.

Soviet order start on big power and irrigation projects. Engineering News Record. v.108, no.25. June 23, 1932. p.900.

Tile sub-irrigation for garden. Farm and Ranch. v.51, no.9. May 1, 1932. p.10.

## Land.

Economic utilization of marginal lands in Nicholas and Webster counties, W.Va. By Millard Peck, Bernard Frank and Paul A.Eke. 1932. 64p. U.S. Department of Agriculture. Technical bulletin no.303.

Land utilization:Editorial. Montana Farmer. v.19, no.19. June 1, 1932. p.6. Changes occur in consumption demands, in economic conditions, and in developments of agricultural practices and bring important new factors into land utilization. There is practically no land left in public domain that is suitable for cultivation.

## Miscellaneous.

Advantages and disadvantages of country life: Selected references. 1932. 30p. mimeographed. U.S. Department of Agriculture. Bureau of Agricultural Economics. Agricultural Economics Bibliography no.37.

American methods win fight to control Russian river. Engineering News Record. v.108, no.25. June 23, 1932. p.877-883. Discussion of power and navigation project on Dnieper river. Editorial p.876.

Annual report. Florida Agricultural Experiment Station. 1931. 184p.

Faltering forward. By E.J.Stirnimann. Country Home. v.56, no.5. May 1932. p.7-9, 43-44. Discussion of agricultural problems in Russia.

Federal services to municipal governments. By Paul V.Betters. 1931. 100p. Brookings Institution. Pamphlet series. v.3, no.1

Hawaiian storm produces flood of 5,400 sec.-ft. per square mile. Engineering News Record. v.108, no.25. June 23, 1932. p.883.

Land. (Cont'd)

Material specifications and research at A. S. T. M. meeting. Engineering News-Record. v. 103, no. 26. June 30, 1932. p. 923-927. Editorial p. 905-906.

National electrical code handbook. By Arthur L. Abbott. 1st edition. New York. McGraw-Hill Book Company, Inc., 1932. 473p.

Patents and how they are procured. By Karl Fonning. Power. v. 75, no. 23. June 7, 1932. p. 844-846.

Probable frequency of serious nation-wide droughts in the United States. By J. B. Kincer. Agricultural Engineering. v. 13, no. 6. June, 1932. p. 145-147.

Rationalizing fan selection. By Charles A. Carpenter. Power. v. 75, no. 25. June 21, 1932. p. 924-925. Not all factors which influence fan application are subject to mathematical analysis, therefore errors may develop even though engineering analysis is of best.

Relation of consumption, production and distribution. Agricultural Engineering. v. 13, no. 6. June, 1932. p. 159-160.

Resume of work accomplished during calendar year 1931 and proposed for calendar year 1932. By R. F. Walter. Reclamation Era. v. 23, no. 6. June, 1932. p. 105-108. Dams completed; Dams under construction; Canal and lateral construction; Drainage construction.

Poultry houses and equipment.

Building plans and bill of materials for O.S.C. portable brooder house. By Alfred G. Lunn. 1932. 6p. Oregon Agricultural College. Extension Service. Extension Bulletin no. 446.

Farm poultry houses. By C. W. Carrick and I. D. Mayer. 1932. 16p. Purdue University. Department of Agricultural Extension. Extension Bulletin no. 182.

New Jersey collapsible summer shelter. By Leslie H. Black. New Jersey Agricultural Experiment Station. Hints to Poultrymen. v. 20, no. 9. June, 1932. 4p.

O.S.C. range house. By A.G. Lunn and W. J. Gilmore. Agricultural College Extension Service. Extension Bulletin no. 442.

Plans and specifications for two types of trap nests. By Willard C. Thompson. New Jersey Agricultural Experiment Station. Hints to Poultrymen. v. 20. no. 7. April, 1932. 4p.

Shelter sheds for turkeys. By Paul R. Hoff and J. H. Claybaugh. 1932. 4p. Nebraska. Agricultural College. Extension Service. Extension Circular 733.

Public works.

Billions for public works! By Laurence Stern. Magazine of Wall Street. v. 50, no. 3. May 28, 1932. p. 144-145, 186-187. For centuries, especially during periods of hard times, men have toyed with theory of manufacturing employment and demand for goods by expenditure of public money or resort to public

credit. There is no historical evidence that such efforts ever have been successful.

Great job looms in the Colorado River Aqueduct. By F. E. Weymouth. Engineering News-Record. v. 108, no. 24. June 16, 1932. p. 847-850.  
Editorial p. 845-846.

Why progress depends on construction. By Willard T. Chevalier. Engineering News-Record. v. 108, no. 25. June 23, 1932. p. 884. Construction, world's capital-fixing agency, viewed as direct expression of public faith in future. Its relation to governmental finance and public works.

Pumps and pumping.

About pumping water into a pool. Domestic Engineering. v. 139, no. 5. May 28, 1932. p. 41.

Multiple nozzle diffusion pumps. By T.L. Ho. Review of Scientific Instruments. v. 3, no. 3. March, 1932. p. 133-135.

Suction lifts for pumps. By Donald McTee. Power. v. 75, no. 24. June 14, 1932. p. 876-877.

Time - pressure characteristics of various diffusion and molecular pumps. By Peter J. Mills. Review of Scientific Instruments. v. 3, no. 6. June, 1932. p. 309-322.

Reclamation.

Social and economic value of electrical development in federal reclamation. By Dr. Elwood Moad. Reclamation Era. v. 23, no. 7. July, 1932. p. 121-122.

Refrigeration.

Combined N H<sub>3</sub> and C O<sub>2</sub> refrigeration systems. Power Plant Engineering. v. 36, no. 12. June 15, 1932. p. 495-496. Temperatures of from 50 to 75 deg.F. below zero demanded by industrial processes can be met with dual system, which works in nicely with existing equipment.

Cooling milk on the dairy farm. By Chas. P. Huntington. Jersey Bulletin. v. 51, no. 22. June 1, 1932. p. 766, 779.

Cooling milk on the farm. Milk Plant Monthly. v. 21, no. 6. June, 1932. p. 68. Diagram gives construction details.

Data on water temperatures for refrigeration. Heating and Ventilating. v. 29, no. 6. June, 1932. p. 34-35. Fig. 1 shows probable temperature of well water obtained at depths of from 20 ft. to 60 ft. Fig. 2, bases for estimating maximum temperature of surface water. Information obtained from water supply paper 520, U. S. Geological Survey.

Dichloromethane and dichloroethylene as refrigerants. By R. J. Waterfill. Industrial and Engineering Chemistry. v. 24, no. 6. June, 1932. p. 616-619.

Freon, a refrigerant. By R.J. Thompson. Industrial and Engineering Chemistry. v. 24, no. 6. June, 1932. p. 620-623.

Refrigeration. (Cont'd)

New condenser design: Vertical shell and tube condenser without shell. Refrigerating Engineering. v. 23, no. 5. May, 1932. p. 286-288.

Refrigerating Engineers discuss vacuum refrigeration. Power. v. 75, no. 25. June 21, 1932. p. 2831.

Refrigeration experience in perishable transportation. By F.S. Welsh. Ice and Refrigeration. v. 82, no. 3. March, 1932. p. 190-193. Type of refrigeration; Requirements for refrigeration; Comparative cost of ice refrigeration.

Solid carbon dioxide. By W. D. Mount. Refrigerating Engineering. v. 23, no. 5. May, 1932. p. 291-292. Discussion of possibility of low cost production.

Solid carbon dioxide refrigeration control. By J. G. Bergdoll and A.W. Ruff. Refrigerating Engineering. v. 23, no. 6. June, 1932. p. 347-350, 353. Direct methods; Indirect methods; Kold-Trol method. Very definitely has place where low temperatures are required.

Sulfur dioxide as a refrigerant. By Chas. W. Johnston. Industrial and Engineering Chemistry. v. 24, no. 6. June, 1932. p. 626-630.

Silos.

Trench silo. By J. T. McAlister and C. W. Stroman. 1932. 16p. Clemson Agricultural College. Extension Service. Circular no. 121.

Soils.

Analysis of factors contributing to the determination of saturation capacity in some tropical soil types. By P. E. Turner. Journal of Agricultural Science. v. 22, pt. 1. January, 1932. p. 72-91.

Drought and soil drifting in Western Canada. By T. C. Main. Engineering Journal. v. 15, no. 6. June, 1932. p. 297-307. Outline of factors on which climate, weather and precipitation depend, and analyses relations between precipitation and yield in various portions of prairie belt. Treats of effect of soil drifting and suggests as solutions for present difficult situation, systematic planting of hedges, forestry conservation methods, retention of sloughs and lakes, and establishment of storage dams for spring run-off waters. Use of strip farming is advocated to minimize soil drifting while hedges are growing.

How soils are classified. By William DeYoung. Montana Farmer. v. 19, no. 19. June 1, 1932. p. 4. Climatic influence; Classification and land use.

New method of determining clay content of soils by moisture absorption at 70 per cent humidity. By Amar Nath Puri. Soil Science. v. 33, no. 6. June, 1932. p. 405-411.

Rapid methods of examining soils. By R. K. Schofield and G. W. Scott Blair. Journal of Agricultural Science. v. 22, pt. 1. January, 1932. p. 135-144. Measurements of rolling weights.

Soils. (Cont'd)

Seasonal subsoil temperature variations. By Alfred Smith. 1932. 421-428 p. Reprint from Journal of Agricultural Research. v. 44, no. 5. March 1, 1932.

Spraying and dusting.

Tank-mixture method of using oil spray. By Ralph H. Smith. 1932. 86p. California. Agricultural Experiment Station. Bulletin no. 527.

Steam.

Comparison of recent steam tables. By P. A. Willis, G. A. Hawkins, and A.A. Potter. Power. v. 75, no. 23. June 7, 1932. p. 841-843.

Storage houses and cellars.

How to construct an insulated egg storage room. By F. E. Price and A.G. Lunn. 1932. 11p. Oregon Agricultural College. Extension Service. Extension Bulletin no. 445.

Tractors.

McCormick tractor passes University of Nebraska tests. Automatic Industries v. 66, no. 25. June 18, 1932. p. 874.

Nebraska tests Farmall F-30 tractor. Automotive Industries. v. 67, no. 1. July 2, 1932. p. 15. I.H.C. product with 4-cyl. engine, bore and stroke  $4\frac{1}{4}$  by 5 in., has number of auxiliary units produced by company. Kerosene used in all test runs. Machine develops drawbar pull of 2520 lb. at 3.11 m.p.h.

New rubber tires for tractors. Farm Implement News. v. 53, no. 22. June 23, 1932. p. 12. Two types: 1. Modification of cushion tire. 2. Low pressure super balloon tires.

Painted caterpillars. By F. Hal Higgins. DuPont Magazine. v. 26, no. 5. May, 1932. p. 3-4.

Tractor situation in Kansas: Importance of corn crop is one limiting factor in greater motorization. Farm Implement News. v. 53, no. 21. June 9, 1932. p. 30-31, 34.

Tunnels.

Driving 56-ft. tunnels for Hoover dam. Engineering News-Record. v. 108, no. 24. June 16, 1932. p. 853-857. Unique drilling carriages developed for enlarging operations. Rounds average 16 ft. and break 1,000 cu. yd. of rock. 435,485 cu.yd. excavated in one month. No trouble experienced in trucking operations for removal of tunnel muck. Editorial p. 845.

Ventilation.

Ventilation standards: Editorial. Heating and Ventilating. v. 29, no. 6. June, 1932. p. 55. Discussion of recent resolution of American Institute of Architects.

Walls.

Cobblestone walls for buildings. By W. H. McPheters. Agricultural Engineering. v. 13, no. 6. June, 1932. p. 147-148.

Walls. (Cont'd)

Modern wall construction. By A. W. Keichline. Clay-Worker. v. 97, no. 6. June, 1932. p. 300-303.

Water.

Conservation of flood waters urged for San Gabriel river. Engineering News-Record. v. 109, no. 1. July 7, 1932. p. 24. Plan to give consideration to (a) Construction of lined by-pass conduit from mouth of San Gabriel Canyon to Narrows. (b) Acquisition of spreading grounds and construction of necessary works to conserve these regulated waters. (c) Report on feasibility of constructing regulating reservoir.

Surface waters of Tennessee, with a chapter on flood conditions for rivers other than the Mississippi. By Warren R. King. 1931. 165 p. Tennessee Division of Geology. Bulletin no. 40.

Water heating.

Heating water by solar energy. By Arvy Carnes. Agricultural Engineering. v. 13, no. 6. June, 1932. p. 156-159. To furnish hot water for family of five, it will cost approximately \$55.00 to construct and install solar heater.

This is hot-water-heater time. By R. L. Blanding. Fuel Oil Journal. v. 10, no. 12. June, 1932. p. 12-13, 87-91. Table gives gallons of hot water per 24 hours on maximum day, including laundry requirements, for various types of buildings.

Why not make water-heater specifications more uniform? Editorial. Electrical World. v. 99, no. 26. June 25, 1932. p. 1082.

Water power.

Water-power resources on Snake river. Engineering News-Record. v. 109, no. 1. July 7, 1932. p. 4. Discussion of report recently issued by Interior Department.

Water supply.

Water supplies for rural homes. Utah Farmer. v. 25, no. 22. June 25, 1932. p. 8. Persons living in rural areas who must take their water from small supply should be cautious in its use unless they have ascertained its quality to be beyond reproach and have taken steps to make certain that their water supply is properly protected.

Weeds.

Cultivate to kill weeds. Nebraska Farmer. v. 74, no. 12. June 11, 1932. p. 28. Cultivation merely kills weeds which otherwise would use some water.

Head loss in flow through fine screens. By M.R. Lewis. Agricultural Engineering, v. 13, no. 6. June, 1932. p. 144. Comparatively new approach to weed control problem in irrigated areas is separation of weed seeds from irrigation water by screening. Limited experiments reported indicate that at low velocities loss of head due to screening is negligible and that further experiments might develop practical commercial practice.

Welding.

How to make lead molds. By James Fletcher. Domestic Engineering. v. 139,  
no. 5. May 28, 1932. p. 26-28.

Wood.

Timber conservation: Statement by George D. Pratt. 1932. 2p. Reprint  
from Congressional Record. v. 75, no. 145. June 9, 1932.

